REMARKS

Applicants respectfully request reconsideration in view of the above amendments and the following remarks.

Applicants appreciate Examiner Geib's time and cooperation during the Examiner Interview of October 18, 2007.

Applicants amend claims 1, 10, 16, and 25; and submit additional claims 31-34. Applicants assert that no new matter is added as amendment to claims 1, 10, 16, and 25 are supported at least at paragraphs 21 of the application. Also, additional claims 31-34 are supported at least at paragraphs 25-27 of the application.

I.   Claims Rejected under 35 U.S.C. Section 112

Claims 1, 3-16 and 18-30 stand rejected under 35 U.S.C. § 112 as allegedly not being enabled. Applicants disagree, but amend these claims to remove the term "only". Hence applicants assert these claims are enabled and ask that the rejection above be withdrawn.

II.   Claims Rejected Under 35 U.S.C. § 103

Claims 1, 3-5, 8-14, 16, 18-20 and 23-29 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over "Reducing Branch Misprediction Penalties Via Dynamic Control Independence Detection" by Chou et al. (hereinafter "Chou") in view of U.S. Patent No. 6,542,984 issued to Keller, et al (hereinafter "Keller").

To establish a *prima facie* case of obviousness Examiner must show that a proper combination of the cited references teaches or suggests each of the elements of a claim.

In regard to claims 1 and 16, as amended, these claims include "a first circuit to identify an exact convergence point subsequent to said branch point in said program, said exact convergence point being a point at which a path mispredicted from said branch point converges

with a correct path <u>at a point of said correct path immediately following said branch point</u>" and "a scheduler . . . to re-execute selected instructions of said program subsequent to said branch point, <u>upon identifying said exact convergence point</u>" (emphasis added).

Examiner has not relied upon and Applicants have been unable to discern any part of <u>Chou</u> or <u>Keller</u> that teaches these elements of claims 1 and 16. <u>Chou</u> "detects <u>all</u> convergence points (which are referred to in Chou as first control independent instructions)" (Examiner Interview Summary, Dec. 4, 2006, p. 3), and, as Examiner has agreed, does not differentiate between exact convergence points as defined in claims 1 and 16, and convergence points that are not exact convergence points (*see* Examiner Interview Summary, p. 3). Hence, <u>Chou</u> re-executes instructions upon detecting a convergence point, regardless of whether it is an <u>exact</u> convergence point, *see, e.g.,* <u>Chou</u>, at § 2.1.2.1., and thus does not identify or distinguish "an exact convergence point," as recited in claims 1 and 16.

Moreover, the specification gives examples of benefits of detecting an exact convergence point that are not provided by the references. Examples of such benefits identified in the specification, (without limitation thereto, as the specification may not provide all of the possible benefits) include providing the ability to correct false data dependencies from the path mispredicted (e.g., see paragraphs 25-27 of the specification). On the other hand, Chou teaches that control independent instructions having data dependencies should be refetched, while only those control independent instructions having independent data need not be refetched (see section 2.1 page 110).

Thus, <u>Chou</u> in view of <u>Keller</u> does not teach or suggest each of the elements of claims 1 and 16, as amended. Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 1 and 16 are requested.

In regard to claims 10 and 25, as amended, include elements similar to those of claims 1 and 16, including "re-executing a second selected subset of said set of instructions, subsequent to an exact convergence point . . . upon identifying said exact convergence point, said exact convergence point being a point at which a path mispredicted from said mispredicted branch point converges with a correct path at a point of said correct path immediately following said mispredicted branch point" (emphasis added). For at least the reasons discussed above regarding claims 1 and 16, Chou in view of Keller also does not teach or suggest each of the elements of claims 10 and 25, as amended. Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 10 and 25 are requested.

In regard to claims 3-5, 8, 9, 11-14, 18-20, 23, 24, and 26-29, these claims depend from independent claims 1, 10, 16, and 25, respectively, and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to the independent claims, these claims are not obvious over Chou in view of Keller. Accordingly, reconsideration and withdrawal of the obviousness rejection of these claims are requested.

Claims 6 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Keller and further in view of "Computer Architecture: A Quantitative Approach" by Hennessey et al., (hereinafter "Hennessey").

Claims 6 and 21 depend from independent claims 1 and 16, respectively, and these claims incorporate the limitations of their respective independent claims. Thus, at least for the reasons mentioned above in regard to independent claims 1 and 16, Chou in view of Keller does not teach each of the elements of these claims. Further, Hennessey does not cure the defects of Chou and Keller. Examiner has not relied upon and Applicants have been unable to discern any part of Hennessey that teaches or suggests a first circuit to identify an exact convergence point. Thus, Chou, Keller, and Hennessey do not teach or suggest each of the elements of claims 6 and 21.

Accordingly, reconsideration and withdrawal of the obviousness rejection of these claims are requested.

Claims 7 and 22 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Chou in view of Keller in view of Hennessey and in further view of "Branch Prediction Using Selective Branch Inversion" by Manne et al. (hereinafter "Manne").

Claims 7 and 22 depend from independent claims 1 and 16 and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to independent claims 1 and 16, Chou and Keller do not teach or suggest each of the elements of these claims. Further, neither Hennessey nor Manne cures the defects of Chou and Keller. Examiner has not relied upon and Applicants have been unable to discern any part of Hennessey or Manne that teaches or suggests a first circuit to identify an exact convergence point. Thus, Chou, Keller, Hennessey and Manne fail to teach or suggest each of the elements of claims 7 and 22. Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 7 and 22 are requested.

Claims 15 and 30 stand rejected under 35 U.S.C. § 103 as being unpatentable over Chou in view of Keller and in further view of Manne.

Claims 15 and 30 depend from independent claims 10 and 25, respectively, and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to independent claims 10 and 25, Chou and Keller fail to teach each of the elements of these claims. Further, Manne does not cure the defects of Chou and Keller. Examiner has not relied upon and Applicants have been unable to discern any part of Manne that teaches or suggests a first circuit to identify an exact convergence point. Thus, Chou, Keller, and Manne do not teach or suggest each of the elements of claims 15 and 30. Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 15 and 30 are requested.

III. Additional Claims 31-34

Applicants submit additional claims 31-34. Claims 31-34 depend from independent claim 1, and incorporate the limitations thereof. Thus, at least for the reasons mentioned above in regard to independent claim 1, Chou and Keller fail to teach each of the elements of these claims.

Moreover, Claims 31-34 include additional limitation that are not obvious in view of the cited references. Thus, Applicants respectfully request the Patent Office allow claims 31-34.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If Examiner believes that a telephone conference would be useful in moving the application forward to allowance, Examiner is encouraged to contact the undersigned at (310) 207-3800.

If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,
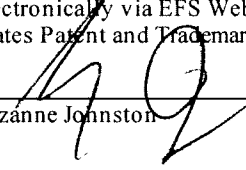BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP

Dated: 10/26/07

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CERTIFICATE OF TRANSMISSION
I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below to the United States Patent and Trademark Office.

Suzanne Johnston

10/26/07
Date